

## Fish Farm achieves 100% infection kill rate with uv-technik

Smolten AS a division of Nordlaks are a large scale salmon fish farm based in Innhavet 2 hours North of the Arctic circle. Producing around 13,000,000 smolt (approx. 50 to 150grams) annually.

Smolten commissioned uv-technik ([www.uv-technik.co.uk](http://www.uv-technik.co.uk)) to design and install a uv-system to disinfect the sea water used in their farming process. Including 7 open-water channels the bespoke system comprises of 4 uv-technik digital power centres controlling 18 lamps each, totalling 72 lamps per channel, 504 lamps overall. Each channel has uv-sensors and monitors which constantly feedback the UV output to the uv-monitoring system on each cabinet and then onto the main control room. Anders Wold the plant Technical Manager observed that;



The biggest issues concerning diseases that can be brought in to the fish farm with seawater are:

- Vibriosis (*Vibrio anguillarum*)
- Furunculosis (*Aeromonas salmonicida*)
- Winter ulcer (*Moritella viscosa*/*Vibrio wodanis*)
- ISA – ISAV (Infectious salmon anemia virus)
- IPN (Infectious pancreas necrosis) (UV-resistant virus demands high doses 200-300 mJ/cm<sup>2</sup>)

UV disinfection has an immediate effect on most bacteria/viruses- reducing infections.

**Anders comments;** “The cost of not having UV disinfection is difficult to quantify, but if we can avoid one serious outbreak of winter ulcer, that alone means a return of investment.

Worst case scenario is that if we cannot document sufficient UV disinfection, the authorities could ban the sales of our fish. We have never used Chemicals. Chemicals may affect the fish adversely, we do not know of any other practical method than UV to disinfect this large flow of water. Previous UV systems seemed to be effective for a period of time, but occasionally we got bacterial tests that weren’t as good as we needed, this was unacceptable and didn’t meet our high standard of quality. We had tried at least 5 other different UV systems previously and none of them were even close to being as effective as the uv-technik system.

We have never experienced this **100% “kill” rate** before, so far after UV treatment we have recorded no detectable traces of bacteria whatsoever!”. The advantages are as follows:

- *The water is treated for a period of 4-8 seconds and there is turbulence in the channel (no bacteria can “hide” behind small particles and the water will never be in a “shaded area” for the whole period of treatment.*
- *The quartz glass and lamps are not submerged, no need for cleaning and easy to maintain and replace lamps ~ annually)*
- *We have UPS powered the lamps so that they are not influenced by short disturbances in the power supply.*
- *We have continuous UV monitoring and this, coupled with rigorous testing, assures that our bacteria and virus levels are always under control and we supply the highest quality product possible.*
- *The UV dose is sufficient for the needed “kill” level even though at least one spare section of lamp heads per channel is turned off.*